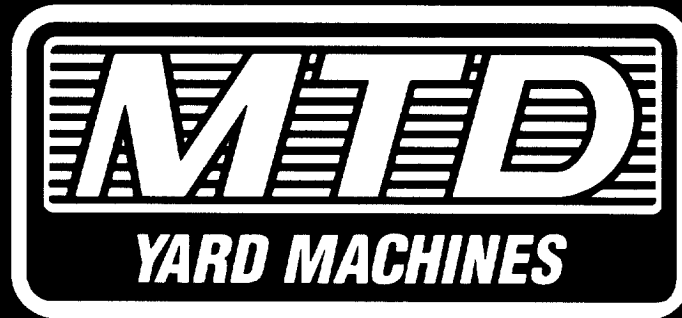


# OWNER'S GUIDE

AMERICAN  AMERICAN  
M A D E O W N E D  
OUTDOOR POWER EQUIPMENT



**Important: Read Safety Rules and Instructions Carefully**

**24", 26" and 28"  
SNOW  
THROWERS**

**Model Numbers  
316E610E000  
316E640F000  
316E660G000**

MTD PRODUCTS INC • P.O. BOX 368022 • CLEVELAND, OHIO 44136-9722

PRINTED IN U.S.A.

FORM NO. 770-8782L

# IMPORTANT

## SAFE OPERATION PRACTICES



THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE YOUR SNOW THROWER. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY. WHEN YOU SEE THIS SYMBOL—



READ ITS WARNING.



### DANGER:

Your snow thrower was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. If you violate any of these rules, you may cause serious injury to yourself or others.



### TRAINING

1. Read this owner's guide carefully in its entirety before attempting to assemble or operate this machine. Be completely familiar with the controls and the proper use of this machine before operating it. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Never allow children under 14 years old to operate a snow thrower. Children 14 years old and over should only operate snow thrower under close parental supervision. Only persons well acquainted with these rules of safe operation should be allowed to use your snow thrower.
3. No one should operate this unit while intoxicated or while taking medication that impairs the senses or reactions.
4. Keep the area of operation clear of all persons, especially small children and pets.
5. Exercise caution to avoid slipping or falling, especially when operating in reverse.



### PREPARATION

1. Thoroughly inspect the area where the equipment is to be used and remove all door mats, sleds, boards, wires and other foreign objects.
2. Disengage all clutches and shift into neutral before starting engine.
3. Do not operate equipment without wearing adequate winter outer garments. Do not wear jewelry, long scarfs or other loose clothing which could become entangled in moving parts. Wear footwear which will improve footing on slippery surfaces.
4. Before working with gasoline, extinguish all cigarettes and other sources of ignition. Check the fuel before starting the engine. Gasoline is an extremely flammable fuel. Do not fill the gasoline tank indoors, while the engine is running, or until engine has been allowed to cool at least two minutes. Replace gasoline cap securely and wipe off any spilled gasoline before starting the engine as it may cause a fire or explosion.
5. Use a grounded three wire plug-in for all units with electric drive motors or electric starting motors.
6. Adjust collector housing height to clear gravel or crushed rock surface.
7. Never attempt to make any adjustments while engine is running (except where specifically recommended by manufacturer).
8. Let engine and machine adjust to outdoor temperature before starting to clear snow.
9. Always wear safety glasses or eye shields during operation or while performing an adjustment or repair, to protect eyes from foreign objects that may be thrown from the machine in any direction.



### OPERATION

1. Do not put hands or feet near or under rotating parts. Keep clear of discharge opening and auger at all times.
2. Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic. Do not carry passengers.
3. After striking a foreign object, stop the engine, remove wire from spark plug, and thoroughly inspect the snow thrower for any damage. Repair the damage before restarting and operating the snow thrower.
4. If the snow thrower should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.

5. Stop engine whenever you leave the operating position, before unclogging the collector/impeller housing or discharge guide, and making any repairs, adjustments, or inspections. Never place your hand in the discharge or collector openings. Use a stick or wooden broom handle to unclog the discharge opening.
6. Take all possible precautions when leaving the unit unattended. Disengage the collector/impeller, shift into neutral, stop the engine, and remove the key.
7. When cleaning, repairing, or inspecting, make certain collector/impeller and all moving parts have stopped. Disconnect spark plug wire and keep away from plug to prevent accidental starting.
8. Do not run engine indoors, except when starting engine and transporting snow thrower in or out of building. Open doors. Exhaust fumes are dangerous.
9. Do not clear snow across the face of slopes. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.
10. Never operate snow thrower without guards, plates, or other safety protection devices in place.
11. Never operate snow thrower near glass enclosure, automobiles, window wells, drop off, etc., without proper adjustments of snow thrower discharge angle. Keep children and pets away.
12. Do not overload machine capacity by attempting to clear snow at too fast a rate.
13. Never operate the machine at high transport speeds on slippery surfaces. Look behind and use care when backing.
14. Never direct discharge at bystanders or allow anyone in front of unit.
15. Disengage power to collector/impeller when transporting or not in use.
16. Use only attachments and accessories approved by the manufacturer of snow thrower (such as wheel weights, counter weights, cabs, etc.).
17. Never operate the snow thrower without good visibility or light. Always be sure of your footing and keep a firm hold on the handles. Walk, never run.
18. Muffler and engine become hot and can cause a burn. Do not touch.



### MAINTENANCE AND STORAGE

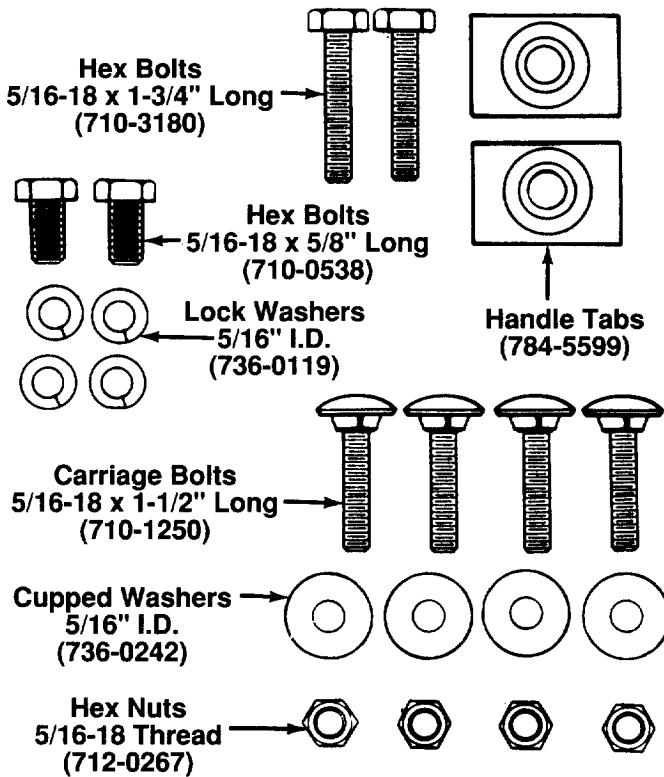
1. Check shear bolts, engine mounting bolts, etc., at frequent intervals for proper tightness to be sure equipment is in safe working condition.
2. Never store the machine with fuel in the fuel tank inside a building where ignition sources are present, such as hot water and space heaters, clothes dryers, and the like. Allow engine to cool before storing in any enclosure.
3. Always refer to owner's guide instructions for important details if snow thrower is to be stored for an extended period.
4. Run machine a few minutes after throwing snow to prevent freeze up of collector/impeller.
5. Check clutch controls periodically to verify they engage and disengage properly and readjust if necessary. Refer to owner's guide for adjustment instructions.

# CONTENTS OF HARDWARE PACK

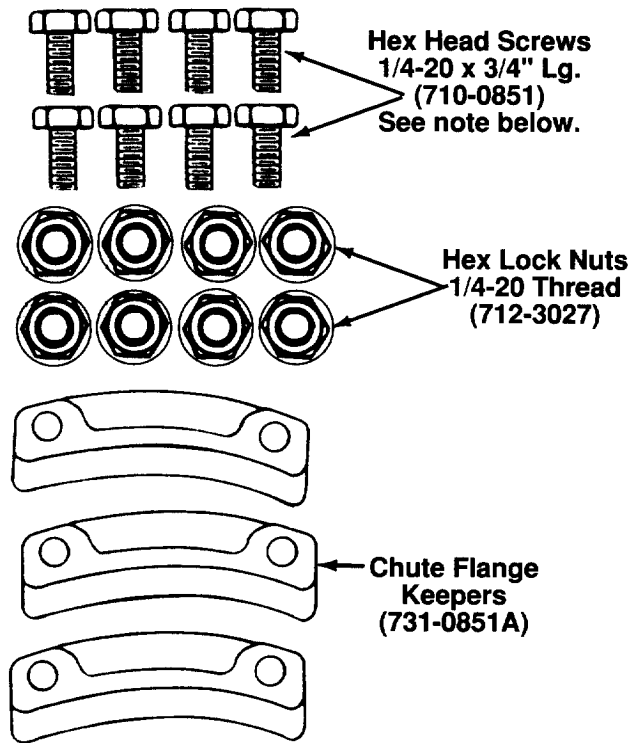
Lay out the hardware according to the illustration for identification purposes. Parts are illustrated approximately one-half size. Part numbers are shown in parentheses.

(Hardware pack may contain extra items which are not used on your unit.)

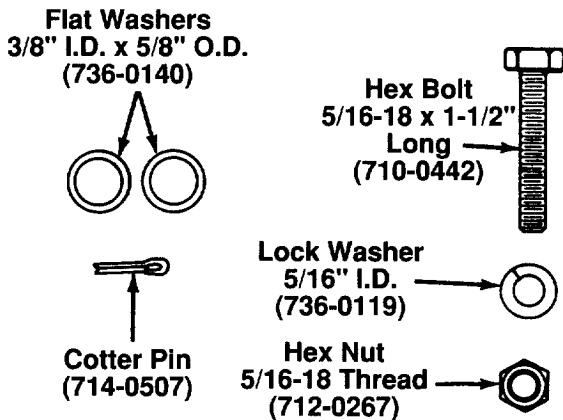
## A ATTACHING THE HANDLE ASSEMBLY



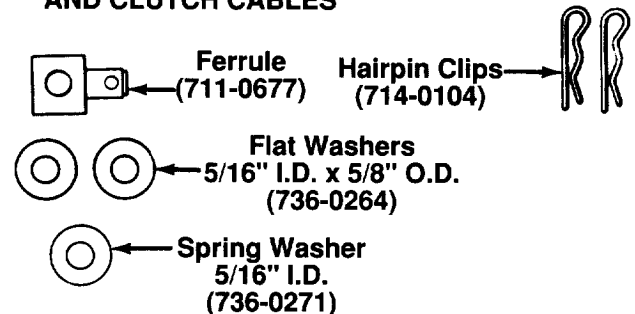
## B ATTACHING THE CHUTE ASSEMBLY



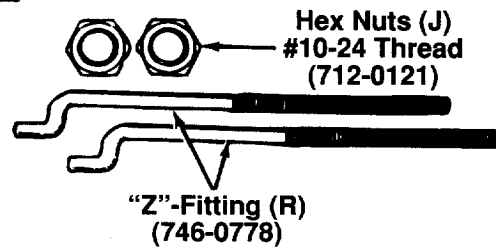
## C ATTACHING THE CHUTE CRANK



## D ATTACHING THE SHIFT ROD AND CLUTCH CABLES

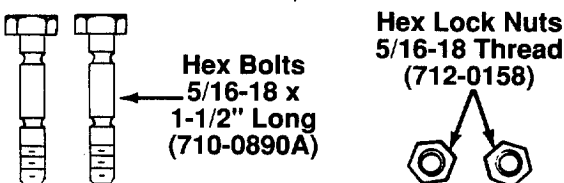


## E ATTACHING THE CLUTCH CABLES



## F AUGER SHEAR BOLTS

The augers are secured to the spiral shaft with two hex bolts and hex insert lock nuts. If you hit a foreign object or ice jam, the snow thrower is designed so that the hex bolts will shear. Two replacement hex bolts and nuts are provided for your convenience. Store in a safe place until needed.



**Note:** Six of the hex head screws and six of the hex lock nuts are used to attach the chute flange keepers to the blower housing. The remaining two screws are ONLY needed if the snow thrower has the curved handles.

# ASSEMBLY INSTRUCTIONS

**IMPORTANT:** This unit is shipped **WITHOUT GASOLINE** or **OIL**. After assembly, see separate engine manual for proper fuel and engine oil recommendations.

**NOTE:** Reference to right or left side of the snow thrower is from behind the unit in the operating position.

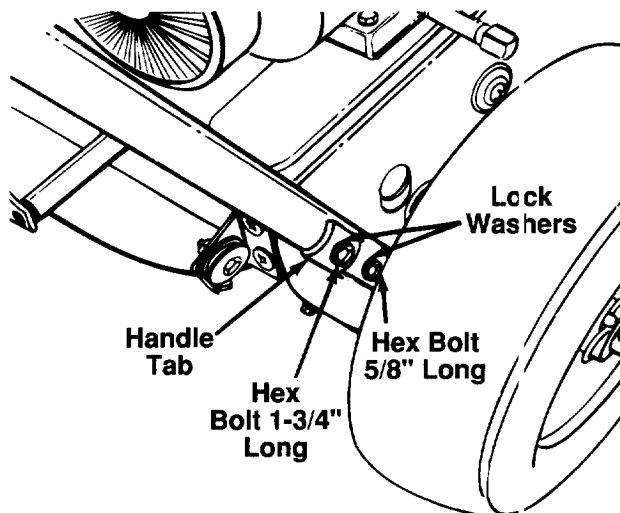


FIGURE 1.

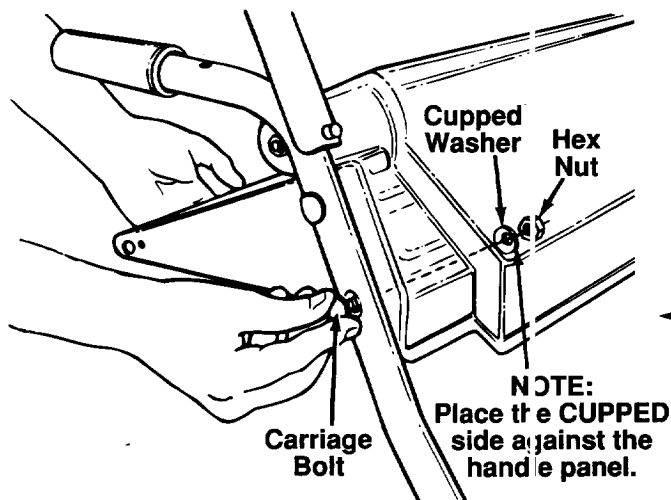


FIGURE 2.

## UNPACKING

1. Remove staples or break glue on the top flaps of the carton. Remove any loose parts included with unit (i.e., owner's manual, etc.).
2. Cut along dotted lines and lay end of carton down flat. Remove packing material.
3. Roll unit out of carton. Check carton thoroughly for loose parts before discarding.

## LOOSE PARTS IN CARTON

- (1) Right Handle
- (1) Left Handle
- (1) Handle Panel Assembly
- (1) Chute Assembly
- (1) Chute Crank Assembly with Mounting Bracket
- (1) Shift Rod
- (1) Hardware Pack

## TOOLS REQUIRED FOR ASSEMBLY

- (1) 3/8" Wrench
- (2) 1/2" Wrenches\*
- (2) 7/16" Wrench\*
- (1) Pair of Pliers
- \*or Adjustable Wrenches

## ATTACHING THE HANDLE ASSEMBLY (Hardware A)

1. Place right handle in position against the snow thrower so the flat side of the handle is against the snow thrower. Secure bottom hole in handle to snow thrower using hex bolt 5/8" long and lock washer. See figure 1. Do not tighten at this time.
2. Place handle tab over the upper hole in handle so the curve in the handle tab matches the curve in the handle. Secure to the snow thrower using hex bolt 1-3/4" long and lock washer. Do not tighten at this time.
3. Attach the left handle in the same manner. Do not tighten at this time.
4. Place the handle panel in position between the handles. Secure with four carriage bolts, cupped washers (cupped side against the handle panel) and hex nuts as shown in figure 2.
5. Tighten the four hex bolts used to attach the bottom of the handles to the snow thrower frame.

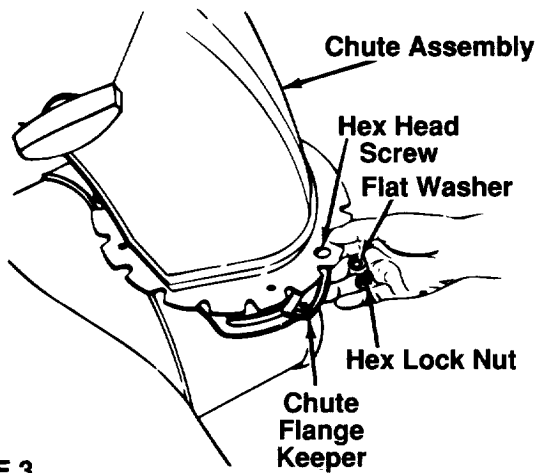


FIGURE 3.

### ATTACHING THE CHUTE ASSEMBLY (Hardware B)

1. Grease the chute opening using a multi-purpose automotive grease or equivalent.
  2. Place chute assembly over chute opening, with the opening in the chute assembly facing the front of the unit. Place chute flange keepers beneath lip of chute assembly. Secure with hex head screws and hex lock nuts as shown in figure 3.
- ← Tighten with two 7/16" wrenches, then back off 1/4 turn to allow easier movement.

**NOTE:** The two remaining hex head screws and hex lock nuts are only needed if the snow thrower has the curved handles.

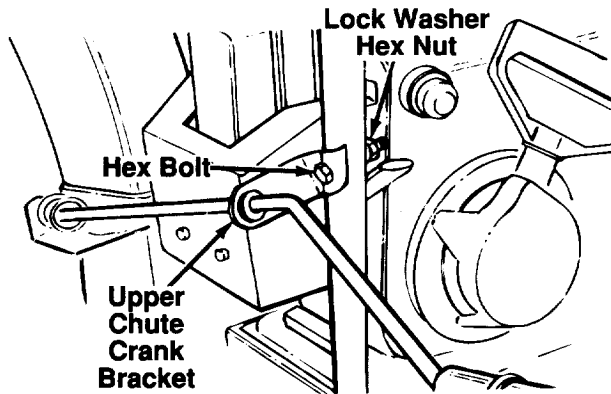


FIGURE 4.

### ATTACHING THE CHUTE CRANK (Hardware C)

1. Insert hex bolt 1-1/2" long through the upper chute crank bracket. See figure 4.
2. Place the hex bolt into the hole provided in the left handle. Secure with lock washer and hex nut. Do not tighten until after attaching the other end of the chute crank.

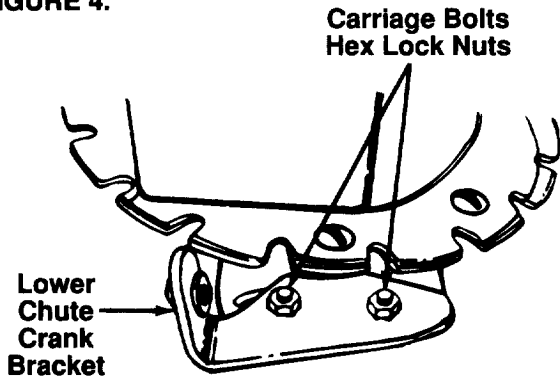


FIGURE 5.

3. Loosen the carriage bolts and hex lock nuts which secure the lower chute crank bracket to the extension on the left side of the chute assembly. See figure 5.
- ←

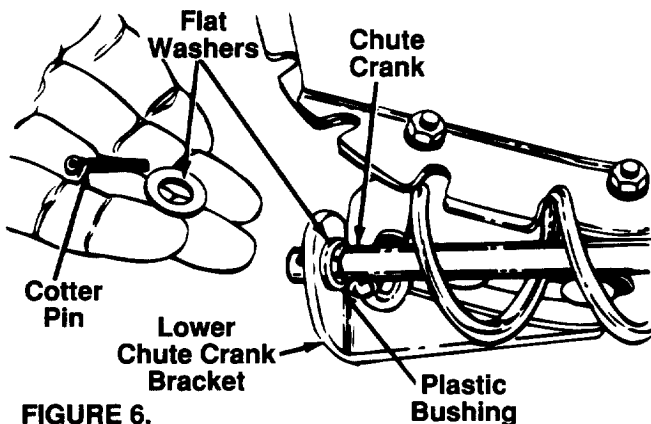


FIGURE 6.

4. Place one flat washer on the end of the chute crank, then insert the end of the crank into the hole in the plastic bushing in the chute crank bracket. See figure 6. Place the other flat washer on the end of the chute crank, and insert cotter pin into hole in the end of crank. Secure by bending the ends of cotter pin in opposite directions.
  5. Adjust the chute bracket so that the spiral on the chute crank fully engages the teeth on the chute assembly. Tighten the nuts on the lower chute crank bracket securely. Tighten the hex bolt and nut on the upper chute crank bracket on the handle.
- ←

**IMPORTANT: Attach the shift rod and clutch cables as follows. THEN CHECK THE ADJUSTMENTS AS INSTRUCTED, AND MAKE ANY FINAL ADJUSTMENTS NECESSARY BEFORE OPERATING YOUR SNOW THROWER.** Failure to follow the instructions may cause damage to the snow thrower.

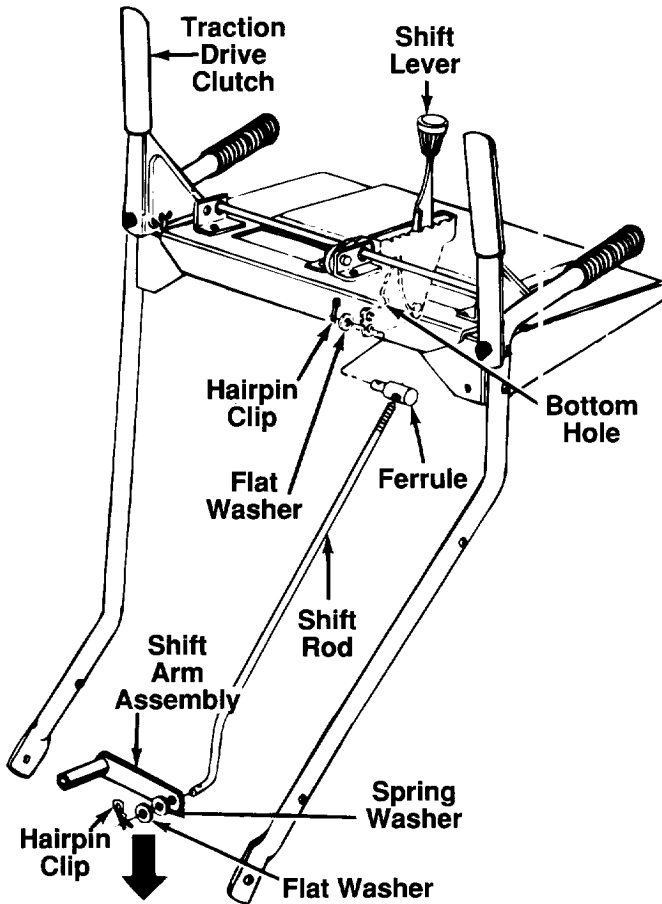


FIGURE 7.

### ATTACHING THE SHIFT ROD (Hardware D)

1. Insert the ferrule through the **lower** hole in the shift lever (beneath the handle panel) from the left side. Secure with flat washer and hairpin clip. See figure 7.
2. Place the shift lever in the sixth (6) speed position (all the way forward).
3. Start threading the shift rod into the ferrule. Push down on the shift arm assembly as far as it will go. Thread shift rod into the ferrule until the end of the shift rod lines up with the hole in the shift arm assembly. Secure with spring washer, flat washer and hairpin clip.

Make certain to check for correct adjustment of the shift rod as instructed in the Final Adjustment section before operating the snow thrower.

### ATTACHING THE CLUTCH CABLES

The "Z" end of the clutch cables are hooked into the clutch grips on each handle. Attach cables as follows.

1. Thread the hex lock nuts (in hardware pack) **all the way up** the threaded portion of the "Z" ends of the clutch cables.
2. Make certain each cable is in groove of cable roller guides. Place the clutch grip in the raised (up) position.
3. Thread the cable onto the threaded portion of the "Z" end until there is no slack in the cable, but the **cable is NOT tight. Do not overtighten cable.** See figure 8.



**WARNING: If cable is tightened so there is tension on the cable with the clutch grip released, the safety features of the snow thrower may be overridden.**

4. When correct adjustment is reached, tighten the hex nut against the bottom portion of the cable to lock it in position.

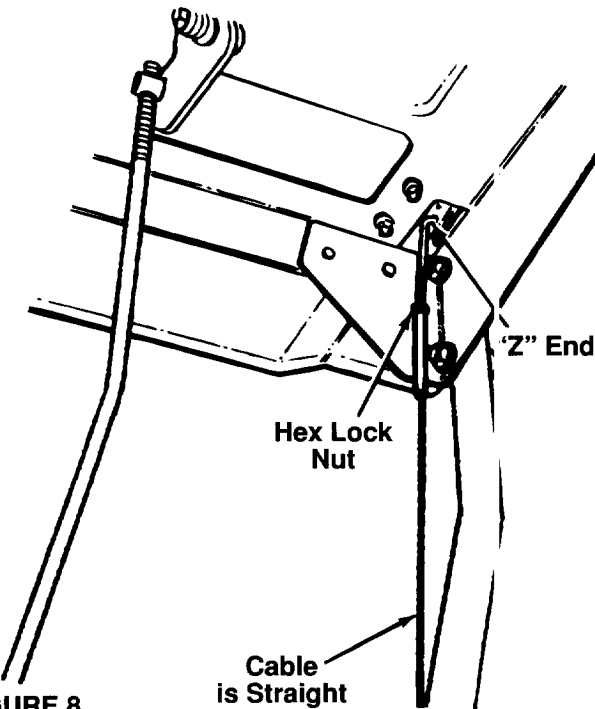


FIGURE 8.

### FINAL ADJUSTMENTS

#### Auger Drive Clutch

To check the adjustment of the auger drive clutch, push forward on the left hand clutch grip (depress the rubber bumper). There should be slack in the cable. Release the clutch grip. The cable should be straight. Make certain you can depress the auger drive clutch grip against the left handle completely.

If necessary, loosen the hex lock nut and thread the cable in (for less slack) or out (for more slack) as necessary. Refer to figure 8. Recheck the adjustment. Tighten the lock nut against the cable when correct adjustment is reached.

### Traction Drive Clutch and Shift Lever Adjustment

To check the adjustment of the traction drive clutch and shift lever, tip the snow thrower forward so that it rests on the auger housing. First move the shift lever all the way forward to sixth (6) position. With the traction drive lever released, spin the snow thrower wheels by hand. They should turn freely. Then engage the traction drive clutch grip. The wheels should stop turning.

Now release the traction drive clutch grip, and spin the wheels again. Move the shift lever back to the fast reverse position, then all the way forward again. There should be no resistance in the shift lever, and the wheels should keep turning.

If you have resistance when moving the shift lever or the wheels stop when they should not, loosen the lock nut on the traction drive cable and unthread the cable one turn. If the wheels do not stop when you engage the traction drive clutch grip, loosen the lock nut on the traction drive cable and thread the cable in one turn. Recheck the adjustment and repeat adjustment as necessary. Tighten the lock nut to secure the cable when correct adjustment is reached.

**NOTE:** If you are uncertain that you have reached the correct adjustment, refer to the Adjustment section on page 10.

### ADJUSTING THE SKID SHOES

The space between the shave plate and the ground can be adjusted. For close snow removal, place skid

shoes in the low position. Use middle or high position when area to be cleared is uneven. See figure 9.

Adjust skid shoes by loosening the four hex nuts and carriage bolts and moving skid shoes to desired position. Make certain the entire bottom surface of skid shoe is against the ground to avoid uneven wear on the skid shoes. Retighten nuts and bolts securely.

It is not recommended that you operate this snow thrower on gravel as loose gravel can be easily picked up and thrown by the auger causing an injury or damage to the snow thrower.

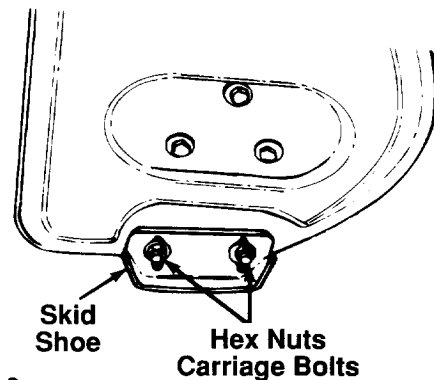


FIGURE 9.

### OPTIONAL ELECTRIC STARTER

If your unit is equipped with an optional electric starter which has not been installed at the factory, install at this time. Follow the instructions packed with the electric starter for installation.

### TIRE PRESSURE (Pneumatic Tires)

The tires are over-inflated for shipping purposes. Check tire pressure and reduce to 15 to 20 psi.

**NOTE:** If the tire pressure is not equal in both tires, the unit may pull to one side or the other.

## CONTROLS

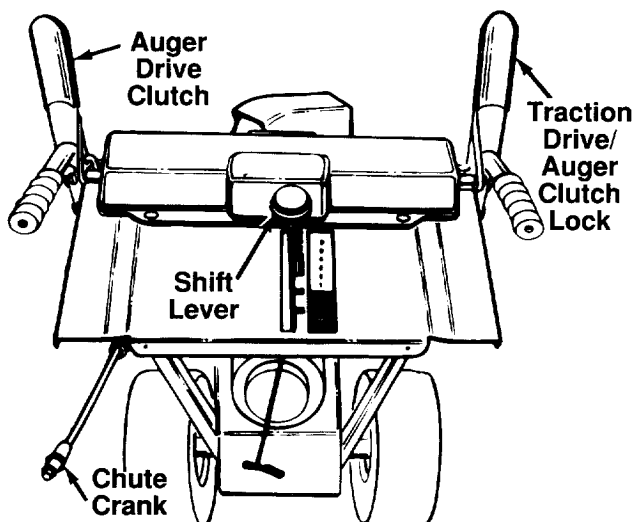


FIGURE 10.

### SHIFT LEVER

(See figures 10 and 11)

The shift lever is located in the center of the handle panel. The shift lever may be moved into one of eight positions. Run engine with throttle in the fast position. Use the shift lever to determine ground speed.

**Forward**—one of six speeds. Position number one (1) is the slowest. Position number six (6) is the fastest.

**Reverse**—two reverse (R) speeds. "R" closest to the operator (all the way back) is the faster of the two.



FIGURE 11.

### AUGER DRIVE (See figure 10)

The auger drive clutch is located on the left handle. Squeeze the clutch grip to engage the augers. Release to stop the snow throwing action. Traction drive clutch must also be released.)

### TRACTION DRIVE/AUGER CLUTCH LOCK (See figure 10)

The traction drive clutch is located on the right handle. Squeeze the traction drive clutch to engage the wheel drive. Release to stop.

This same lever also locks the auger clutch so you can turn the chute crank without interrupting the snow throwing process. If the auger drive clutch is engaged with the traction drive clutch engaged, the operator can release the auger drive clutch (on the left handle) and the augers will remain engaged. Release the traction drive clutch to stop both the augers and wheel drive (auger drive clutch must also be released).

### CHUTE CRANK (See figure 10)

The chute crank is located on left hand side of the snow thrower.

To change the direction in which snow is thrown, turn chute crank as follows:

1. Crank clockwise to discharge to the left.
2. Crank counterclockwise to discharge to the right.

### THROTTLE CONTROL (See figure 12)

The throttle control is located on the engine. It regulates the speed of the engine.

### SAFETY IGNITION SWITCH (See figure 12)

The ignition key must be inserted in the switch before the unit will start. Remove the ignition key when snow thrower is not in use.

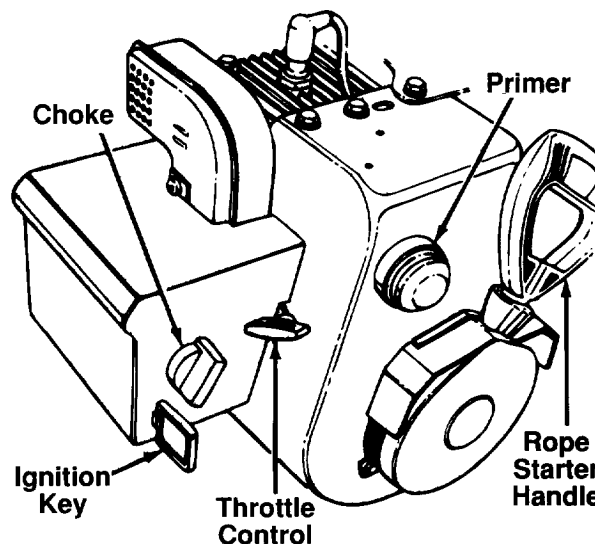


FIGURE 12.—Model 610E Shown

## OPERATION

### GAS AND OIL FILL-UP

Service the engine with gasoline and oil as instructed in the separate engine manual packed with your snow thrower. Read instructions carefully.

**NOTE:** Your snow thrower is shipped without oil; however, a small amount of oil may be present from the factory. Do not overfill.



**WARNING:** Never fill fuel tank indoors, with engine running or while engine is hot. Do not smoke when filling fuel tank.

### ELECTRIC STARTER

**WARNING:** The optional electric starter is equipped with a three-wire power cord and plug and is designed to operate on 120 volt AC household current. It must be properly grounded at all times to avoid the possibility of electric shock which may be injurious to the operator. Follow all instructions carefully. Determine that your house wiring is a three-wire grounded system. Ask a licensed electrician if you are not certain. If your house wiring system is not a three-wire grounded system, do not use this electric starter under any conditions. If your system is grounded and a three-hole receptacle is not available at the point

your starter will normally be used, one should be installed by a licensed electrician.

When connecting the power cord, always connect cord to starter on engine first, then plug the other end into a three-hole grounded receptacle.

When disconnecting the power cord, always unplug the end from the three-hole grounded receptacle first.

### TO START ENGINE

**IMPORTANT:** If unit shows any sign of motion (drive or augers) with the clutch grips disengaged, shut engine off immediately. Readjust as instructed in the "Final Adjustments" section of the Assembly Instructions.

1. Attach spark plug wire to spark plug.
2. **Make certain the auger drive and traction drive clutch grips are in the disengaged (released) position.**
3. Move throttle control up to FAST position. Insert ignition key into slot. See figure 12. Be certain it snaps into place. **Do not** turn key.
4. Rotate choke knob to FULL choke position (cold engine start).

If engine is warm, place choke in OFF position instead of FULL.



- 5. Electric Start Only (Optional):** Connect power cord to switch box on engine. Plug the other end of power cord into a three-hole, grounded 120 volt AC receptacle.
6. Push primer button two or three times. See figure 12.

If engine is warm, push primer button once only.

**NOTE:** Always cover vent hole in primer button when pushing. Additional priming may be necessary for first start if temperature is below 15°F.

7. **Recoil Start:** Grasp starter handle (see figure 12) and pull rope out slowly, until it pulls slightly harder. Let rope rewind slowly. Pull starter handle rapidly. Do not allow handle to snap back. Allow it to rewind slowly while keeping a firm hold on the starter handle.

**Electric Start (Optional):** Push starter button on top of the engine to crank the engine. When engine starts, release starter button.

8. Repeat step 7 until engine starts. If engine fails to start, repeat steps 6 and 7 until engine starts.
9. As engine warms up and begins to operate evenly, rotate choke knob slowly to OFF position. If engine falters, return to FULL choke, then slowly move to OFF position.



### TO STOP ENGINE

1. Run engine for a few minutes before stopping to help dry off any moisture on the engine.
2. To help prevent possible freeze-up of starter, proceed as follows.

**Optional Electric Starter:** Connect power cord to switch box on engine, then to 120 volt AC receptacle. With the engine running, push starter button and spin the starter for several seconds. The unusual sound made by spinning the starter will not harm engine or starter. Disconnect the power cord from receptacle first, and then from switch box.

**Recoil Starter:** With engine running, pull starter rope with a rapid, continuous full arm stroke three or four times. Pulling the starter rope will produce a loud clattering sound, which is not harmful to the engine or starter.

3. To stop engine, remove the ignition key. **Do not** turn key. Disconnect the spark plug wire from the spark plug to prevent accidental starting while equipment is unattended.

**NOTE:** Do not lose ignition key. Keep it in a safe place. Engine will not start without the ignition key.

4. Wipe all snow and moisture from the carburetor cover in the area of the control levers. Also, move control levers back and forth several times. Leave throttle control lever in the STOP or OFF position. Leave choke control in the FULL choke position.



### TO ENGAGE DRIVE

1. With the engine running near top speed, move shift lever into one of the six FORWARD positions or two REVERSE positions. Select a speed appropriate for the snow conditions that exist. Use the slower speeds until you are familiar with the operation of the snow thrower.
2. Squeeze the traction drive clutch grip against the right handle and the snow thrower will move. Release it and the drive motion will stop.

**NOTE:** NEVER move shift lever without first releasing the drive clutch.

### TIRE CHAINS (Optional Equipment)

Tire chains should be used whenever extra traction is needed.

### OPERATING TIPS

**NOTE:** Allow the engine to warm up for a few minutes as the engine will not develop full power until it reaches operating temperature.



**WARNING:** Temperature of muffler and surrounding areas may exceed 150°F. Avoid these areas.

1. For most efficient snow removal, remove snow immediately after it falls.
2. Discharge snow downwind whenever possible. Slightly overlap each previous swath.
3. Set the skid shoes 1/4" below the scraper bar for normal usage. The skid shoes may be adjusted upward for hard-packed snow. Adjust downward when using on gravel or crushed rock.
4. Be certain to follow the precautions listed under "To Stop Engine" on page 9 to prevent possible freeze-up.
5. Clean the snow thrower thoroughly after each use.

## ADJUSTMENTS



**WARNING: NEVER attempt to clean chute or make any adjustments while engine is running.**

### CHUTE ASSEMBLY ADJUSTMENT

The distance snow is thrown can be adjusted by adjusting the angle of the chute assembly. The sharper the angle, the shorter the distance snow is thrown. See figure 13.

To adjust chute assembly, loosen the hand knob. Pivot the top of the chute assembly to position desired. Retighten the hand knob.

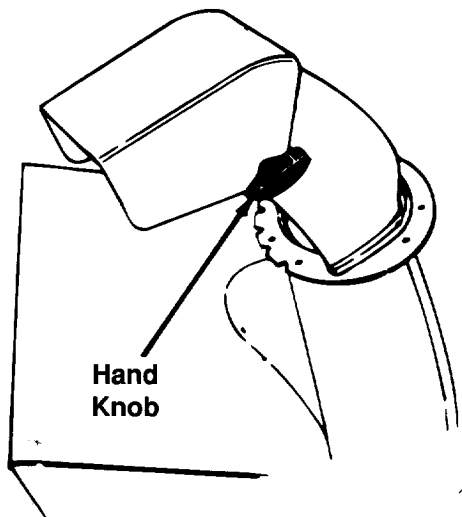


FIGURE 13.

### SKID SHOE ADJUSTMENT

The space between the shave plate and the ground can be adjusted. Refer to page 7 of the Assembly Instructions.

### TRACTION DRIVE CLUTCH ADJUSTMENT

Refer to the Final Adjustment section of the Assembly Instructions to adjust the traction drive clutch. If you are uncertain that you have reached the correct adjustment, the adjustment can be physically checked as follows.

With the snow thrower tipped forward (be certain to drain the gasoline or place plastic film under the gas cap if the snow thrower has already been operated), remove the frame cover underneath the snow thrower by removing six self-tapping screws.

With the traction drive clutch released, there must be clearance between the friction wheel and the drive plate in all positions of the shift lever. With the traction drive clutched engaged, the friction wheel must contact the drive plate. See figure 14.

If adjustment is necessary, loosen the lock nut on the traction drive cable and thread the cable in or out as necessary. Tighten the lock nut to secure the cable when correct adjustment is reached. Reassemble the frame cover.

**NOTE:** If you placed plastic under the gas cap, be certain to remove it.

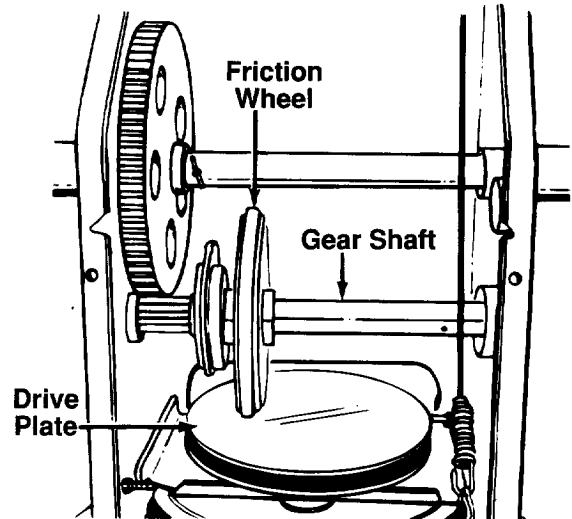


FIGURE 14.

### AUGER CLUTCH ADJUSTMENT

To adjust the auger clutch, refer to Final Adjustment section of Assembly Instructions.

### SHIFT ROD ADJUSTMENT

To adjust the shift rod, remove the hairpin clip and flat washer which secure the shift rod to the shift arm assembly. Refer to figure 7. Adjust as specified in Assembly Instructions.

## CARBURETOR ADJUSTMENT



**WARNING:** If any adjustments are made to the engine while the engine is running (e.g. carburetor), keep clear of all moving parts. Be careful of heated surfaces and muffler.

Minor carburetor adjustment may be required to compensate for differences in fuel, temperature, altitude and load.

Refer to the separate engine manual packed with your unit for carburetor adjustment information.

## DRIVE WHEELS

The wheels may be adjusted for two different methods of operation. The adjustment is made by placing the klick pins in one of two different holes on the right side of the unit. See figure 15.

1. **One Wheel Driving**—Place klick pin in the outside axle hole on the right side. This position gives power drive to the left wheel only, making the unit easier to maneuver.
2. **Both Wheels Driving**—Place klick pin in the hole in the hub next to the rim on the right side. This position is good for heavy snow as there is power drive in both wheels.

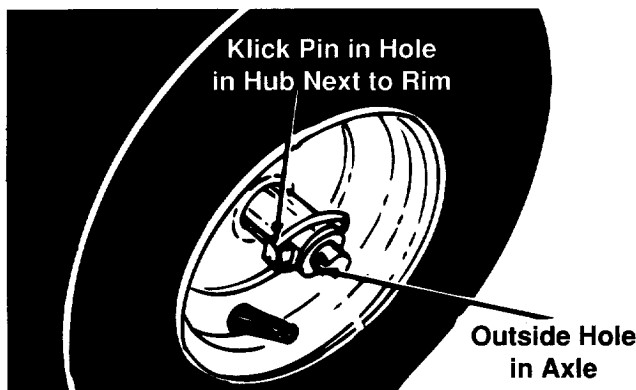


FIGURE 15.

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## MAINTENANCE

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**WARNING:** Disconnect the spark plug wire and ground against the engine before performing any repairs or maintenance.

## LUBRICATION

### Gear Shaft

Lubricate the gear shaft with "Slick 50 Grease" at least once a season or after every 25 hours of operation (available at automotive stores, or order part number 737-0290). Refer to figure 14.

**IMPORTANT:** Keep all grease and oil off of the friction wheel and drive plate.

### Shifting Mechanism

Lubricate the shifting mechanism and pivot points on the shift rod with engine oil at least once a season or after every 25 hours of operation.

### Traction Drive/Auger Clutch Lock

The cams on the ends of the control rods which interlock the traction drive and auger drive clutches must be lubricated at least once a season or every twenty-five hours of operation. The cams can be accessed beneath the handle panel. Refer to page 16, reference 39. Use a multi-purpose automotive grease.

### Gear Case

The gear case is lubricated with grease at the factory and does not require checking. If disassembled for any reason, lubricate with 2 ounces of Shell Alvania grease, part number 737-0168.

### Bearings

Lubricate the auger and wheel bearings once a season with light oil.

## AUGERS

The augers are secured to the spiral shaft with two hex bolts and hex lock nuts. See figure 16. If you hit a foreign object or ice jam, the snow thrower is designed so that the hex bolts will shear.

If the augers will not turn, check to see if the hex bolts have sheared. Two replacement hex bolts and hex lock nuts have been provided with the snow thrower. For future use, order part number 710-0890 (hex bolt 5/16-18 x 1.5" long) and 712-0429 (hex insert lock nut 5/16-18 thread).

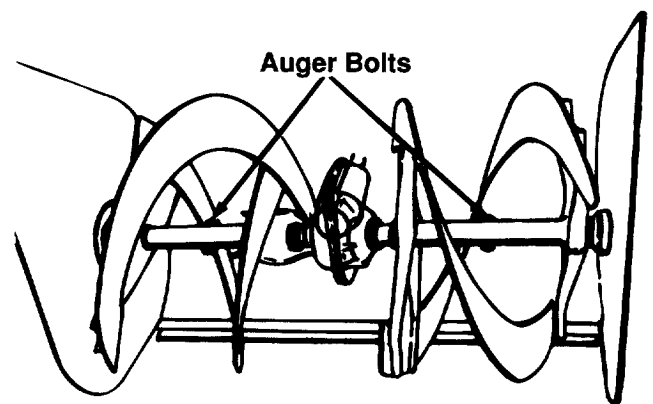


FIGURE 16.

## SHAVE PLATE AND SKID SHOES

The shave plate and skid shoes on the bottom of the snow thrower are subject to wear. They should be checked periodically and replaced when necessary.

To remove skid shoes, remove the four carriage bolts, belleville washers and hex nuts which attach them to the snow thrower. Reassemble new skid shoes with the four carriage bolts, belleville washers (cupped side goes against skid shoes) and hex nuts. Make certain the skid shoes are adjusted to be level.

To remove shave plate, remove the carriage bolts, belleville washers and hex nuts which attach it to the snow thrower housing. Reassemble new shave plate, making sure heads of the carriage bolts are to the inside of the housing. Tighten securely.

## ENGINE

Refer to separate engine manual for all engine maintenance procedures.

## BELT REMOVAL AND REPLACEMENT



**WARNING:** Disconnect the spark plug wire from the spark plug and ground.

### AUGER BELTS

**NOTE:** It is necessary to remove both belts in order to change either one. If changing just one belt, be certain to check the condition of the other belt (model 610E has only one auger belt).

1. Remove the plastic belt cover on the front of the engine by removing the two self-tapping screws. See figure 17.

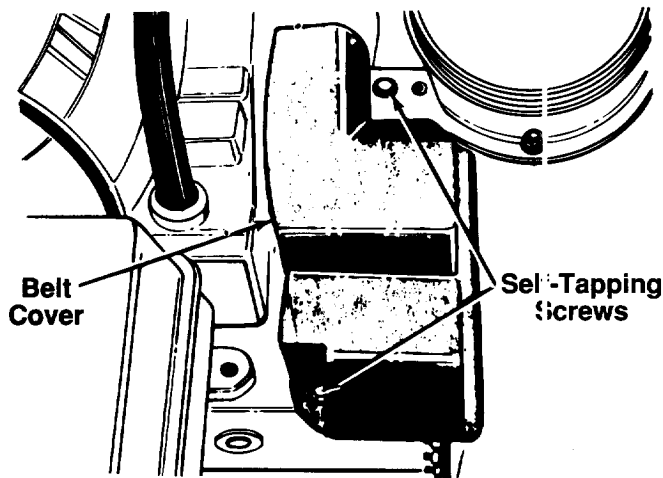


FIGURE 17.

2. Drain the gasoline from the snow thrower, or place a piece of plastic under the gas cap.
3. Tip the snow thrower up and forward so that it rests on the housing.
4. Remove six self-tapping screws from the frame cover underneath the snow thrower.

5. Roll the front and rear auger belts off the engine pulley. See figure 18.

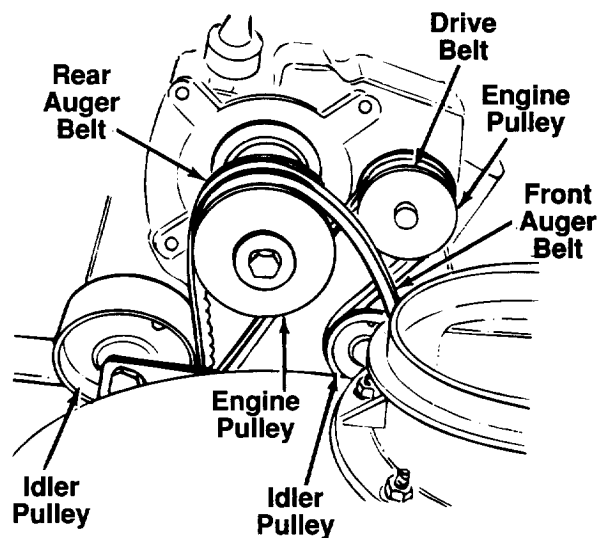


FIGURE 18.

6. Unhook the idler spring from the hex bolt on the auger housing. See figure 19.
7. Unhook the support bracket spring from the frame.
8. Lift the front auger belt from the auger pulley, and slip belt between the support bracket and the auger pulley. See figure 19. Repeat this step for rear auger belt (except model 610E).
9. Replace both auger drive belts by following instructions in reverse order.

### DRIVE BELT

1. Follow steps 1 through 4 of previous instructions.
2. Pull idler pulley up, and lift belt off engine pulley and friction wheel disc. See figure 18.
3. Using a 7/16" wrench, loosen the nut on the stop bolt until the support bracket rests on the auger pulley. See figure 20.
4. Slip belt between friction wheel and friction wheel disc. See figure 20. Remove and replace belt. Reassemble following the instructions in reverse order.

**NOTE:** The support bracket must rest on the stop bolt after the new belt has been assembled. See figure 20.

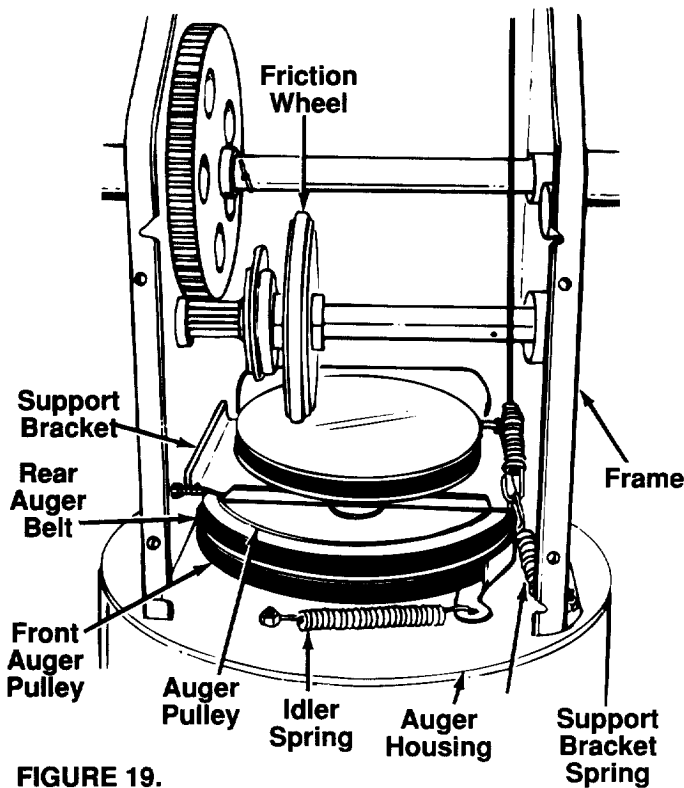


FIGURE 19.

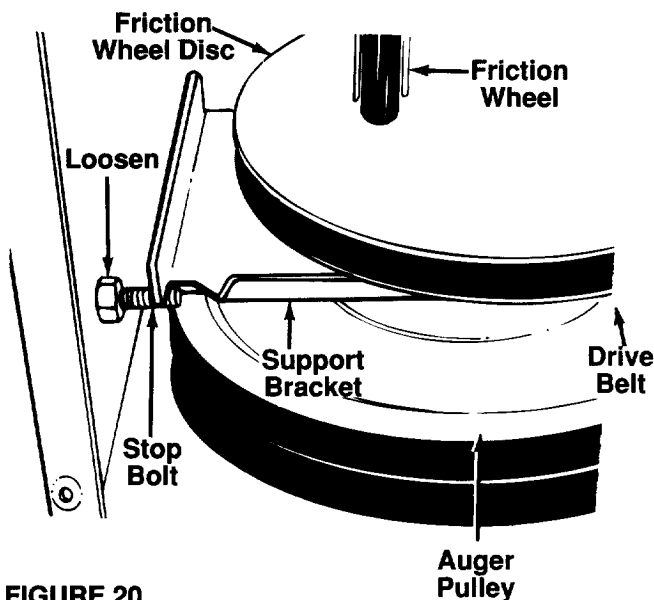


FIGURE 20.

### CHANGING THE FRICTION WHEEL RUBBER

The rubber on the friction wheel is subject to wear and should be checked after 25 hours of operation, and periodically thereafter. Replace the friction wheel rubber if any signs of wear or cracking are found.

1. Drain the gasoline from the snow thrower, or place a piece of plastic under the gas cap.
2. Tip the snow thrower up and forward, so that it rests on the housing.
3. Remove six self-tapping screws from the frame cover underneath the snow thrower.

4. Remove the klick pins which secure the wheels, and remove the wheels from the axle.
5. Remove the gear shaft from the unit by removing the bolts, lock washers and flat washers from each side of the frame. See figure 21. Hold the friction wheel assembly, and slide the gear shaft out of the unit toward the right hand side. Refer to figure 14.
6. Remove the six screws from the friction wheel assembly (three from each side). Remove the friction wheel rubber from between the friction wheel plate.
7. Reassemble new friction wheel rubber to the friction wheel assembly, tightening the six screws in rotation and with equal force.
8. Slide the friction wheel assembly up onto the shift mechanism as shown in figure 14, and slide the gear shaft back into the unit. Reassemble in reverse order.

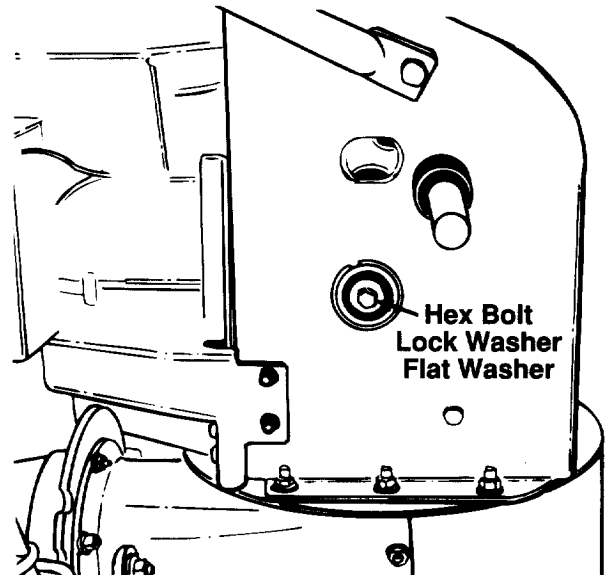


FIGURE 21.

## OFF-SEASON STORAGE



**WARNING:** Never store engine with fuel in tank indoors or in poorly ventilated areas, where fuel fumes may reach an open flame, spark or pilot light as on a furnace, water heater, clothes dryer or other gas appliance.

If unit is to be stored over 30 days, prepare for storage as follows:

1. Remove all gasoline from carburetor and fuel tank to prevent gum deposits from forming on these parts and causing possible malfunction of engine.

- a. Run engine until fuel tank is empty and engine stops due to lack of fuel.
- b. Drain carburetor by pressing upward on bowl drain, located below the carburetor cover.



**WARNING: Drain fuel into approved container outdoors, away from open flame. Be certain engine is cool. Do not smoke.**

**Fuel left in engine during warm weather deteriorates and will cause serious starting problems.**

**NOTE:** Fuel stabilizer (such as STA-BIL) is an acceptable alternative in minimizing the formation of fuel gum deposits during storage. Add stabilizer to gasoline in fuel tank or storage container. Always follow mix ratio found on stabilizer container. Run engine at least 10 minutes after adding stabilizer to allow it to reach carburetor. Do not drain carburetor if using fuel stabilizer.

2. Remove spark plug and pour one (1) ounce of engine oil through spark plug hole into cylinder. Crank engine several times to distribute oil. Replace spark plug.
3. Remove all dirt from exterior of engine and equipment.
4. Follow lubrication recommendations on page 11.

**NOTE:** When storing any type of power equipment in an unventilated or metal storage shed, care should be taken to rust proof the equipment. Using a light oil or silicone, coat the equipment, especially any chains, springs, bearings and cables.

# TROUBLE SHOOTING GUIDE

Trouble	Possible Cause(s)	Corrective Action
Engine fails to start	<ol style="list-style-type: none"> <li>1. Fuel tank empty, or stale fuel.</li> <li>2. Blocked fuel line.</li> <li>3. Key not in switch on engine.</li> <li>4. Spark plug wire disconnected.</li> <li>5. Faulty spark plug.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill tank with clean, fresh gasoline.</li> <li>2. Clean fuel line.</li> <li>3. Insert key.</li> <li>4. Connect wire to spark plug.</li> <li>5. Clean, adjust gap or replace.</li> </ol>
Engine runs erratic	<ol style="list-style-type: none"> <li>1. Unit running on CHOKE.</li> <li>2. Blocked fuel line or stale fuel.</li> <li>3. Water or dirt in fuel system.</li> <li>4. Carburetor out of adjustment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn choke knob to OFF position.</li> <li>2. Clean fuel line; fill tank with clean fresh gasoline.</li> <li>3. Use carburetor bowl drain to drain fuel tank. Refill with fresh fuel.</li> <li>4. Adjust carburetor. See separate engine manual.</li> </ol>
Loss of power	<ol style="list-style-type: none"> <li>1. Spark plug wire loose.</li> <li>2. Gas cap vent hole plugged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect and tighten spark plug wire.</li> <li>2. Remove ice and snow from cap. Be certain vent hole is clear.</li> </ol>
Engine overheats	<ol style="list-style-type: none"> <li>1. Engine oil level low.</li> <li>2. Carburetor not adjusted properly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill crankcase with proper oil.</li> <li>2. Adjust carburetor. See separate engine manual.</li> </ol>
Excessive vibration	Loose parts or damaged impeller.	Stop engine immediately and disconnect spark plug wire. Tighten all bolts and nuts. Make all necessary repairs. If vibration continues, have unit serviced by authorized service dealer.
Hard to shift, or will not shift	Shift rod misadjusted.	Readjust shift rod. See Adjustment section of this manual.
Unit fails to propel itself	<ol style="list-style-type: none"> <li>1. Incorrect adjustment of drive clutch.</li> <li>2. Drive belt loose or damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust drive clutch. Refer to Adjustment section.</li> <li>2. Replace drive belt. Refer to Maintenance section.</li> </ol>
Unit fails to discharge snow	<ol style="list-style-type: none"> <li>1. Auger shear bolt broken.</li> <li>2. Discharge chute clogged.</li> <li>3. Foreign object lodged in auger.</li> <li>4. Incorrect adjustment of auger drive clutch.</li> <li>5. Auger drive belt loose or damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace auger shear bolt. Refer to Maintenance section.</li> <li>2. Stop engine immediately and disconnect spark plug wire. Clean discharge chute and inside of auger housing.</li> <li>3. Stop engine immediately and disconnect spark plug wire. Remove object from auger.</li> <li>4. Adjust auger clutch. Refer to Adjustment section.</li> <li>5. Replace auger drive belt. Refer to Maintenance section.</li> </ol>

NOTE: For repairs beyond the minor adjustments listed above, please contact your nearest authorized service dealer.

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CLEVELAND, OHIO 44136

Model Series	E610E	E640F	E660G
Ignition Key	725-1660	725-1660	725-1660
Shave Plate	734-5581A	784-5579	784-5582A
Skid Shoe	784-5580	784-5580	784-5580
Auger Belts	754-0430	754-0430 (2 req'd.)	754-0430 (2 req'd.)
Drive Belt	754-0343	754-0346	754-0346
Friction Wheel Rubber	735-0243	735-0243	735-0243
Friction Wheel Ass'y. Comp.	634-0042A	684-0042A	684-0042A
Spark Plug	J-8C	J-8C	J-8C
Engine Oil (SAE 5W30)	730226	730226	730226
Electric Start Kit	Standard	Standard	Standard
Tire Chains	390-139-000	390-991-000	390-655-000
Headlight Kit	N/A	390-255-000	390-255-000
Drift Cutter Kit	390-679-000	390-679-000	390-679-000
Snow Cab	390-674-000	390-674-000	390-674-000
Illustrated Parts List*	770-96-9B	770-96-9B	770-96-9B

\*Either use the order form attached to this manual or telephone 1 (800) 800-7310. Wait for the message and then press (2) for literature. An operator will take your order.

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